

SEVEN FAMILIES OF AQUATIC  
AND SEMIAQUATIC HEMIPTERA  
IN LOUISIANA<sup>1</sup>

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Part III. *Family Belostomatidae* Leach, 1815. "Giant Water Bugs," "Fish Killers," "Electric Light Bugs," or "Toe Biters."

Belostomatids are the most conspicuous of the aquatic Hemipterans. They range from 15-70 mm long. They are dull brown or dull green, oval, and rather flattened. Beneath the prominent eyes are hidden the four-segmented antennae. The three-jointed beak is very stout and may inflict a painful wound should the bugs be handled carelessly. The front legs are raptorial and the middle and hind legs flattened and ciliated for swimming. Adults possess wings with distinct membranous portions at the tips. A pair of short, straplike, retractile appendages are found on the apex of the abdomen.

Two genera, *Lethocerus* and *Belostoma*, and seven species are found in Louisiana. Species of *Lethocerus*, the larger in body size of the two genera, are often attracted to street lights at night in great abundance. Their gross appearance and sprawling motions when on the ground render them "demons" to the average person. A third genus, *Abedus*, may be found eventually in Louisiana since it is recorded for Mississippi by Wilson (1958).

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A species of the genus *Lethocerus* is boiled in salt water and eaten by many Asiatic peoples. This same species may be purchased as food in Chinatown in San Francisco.

The curious habit of "Death feigning" is reported for members of the genus *Belostoma*. When disturbed, either by removal from the water or by touch, these bugs assume a position in which the legs are partially bent and held rigid for varying periods of time.

Belostomatids may be readily collected in association with many types of aquatic vegetation. They are often found clinging to some support near the surface with the tips of the abdomen protruding above the surface. Each of the strap-like appendages at the tip of the abdomen has an opening near the base through which air is admitted to the space beneath the hemelytra. They are masters of their environment and are fiercely predaceous, feeding on many times their size and often play havoc in fish ponds. All members of the family secrete a toxic salivary substance which stuns or kills the prey.

Belostomatids overwinter as adults. Irwin (1962) gives observations of *Belostoma* in an apparent state of hibernation during the winter months at two different locations in California. However, in Louisiana the adults may remain active during the mild winters. Eggs are laid in the spring and early summer months. *Lethocerus* often deposit large masses of eggs on structures at or above the water level. The eggs are glued to the backs of the males, probably for protection, often in such abundance as to render him unstable in swimming and certainly unable to fly. The male carries the eggs until hatching which usually occurs in 10-12 days. The egg mass may then be easily shed. Hungerford (1920) gives the approximate length of the five instars as 4.6, 5.5, 8, 11.5, and 17 days.

*Review of the Literature.* Townsend (1886) recorded one specimen of *Lethocerus americanus* (Leidy) from New Orleans, La. This lone record may have been the result of a misidentification. Hoffnan (1924) published notes on the biology of *Lethocerus*

*americanus* (Liedy) and Hungerford (1925) added notes on the life cycle of this species. A paper on the American Belostomatidae with keys, synonymy, descriptions, and distributional data was written by Cummings (1933). Rankin (1935) published a life history study of *L. americanus*. De Carlo (1932, 1935, 1938b) wrote papers describing new species and a monograph of the Belostomatidae of the Americas (1938a). In 1948, De Carlo published a revision of the genus *Abedus* which contains keys, descriptions, and synonymy of the known species from both of the Americas. Menke (1958) published a synopsis of the genus *Belostoma* of America North of Mexico, with the description of a new species. This work contains keys, descriptions, distribution, and synonymy. Additional records of aquatic Hemiptera in Louisiana were given by Penn (1952). Lauck and Menke (1961) made *Benacus* Stal a subgenus of *Lethocerus*. Their classification is used herein. Irwin (1962) published observations on hibernation in *Belostoma*. A review of the genus *Lethocerus* in North and Central America was published by Menke (1963). This useful work presents useful keys, systematic data, synonymy, and distribution maps.

### KEY TO THE LOUISIANA GENERA OF *BELOSTOMATIDAE* LEACH

1. Metasternum with a strong midventral keel; membrane of first wing reduced . . . . . *ABEDUS* Stal  
Metasternum without midventral keel;  
membrane of first wing not reduced . . . . . 2
2. Basal segment of beak longer than second  
(except in *B. bakeri*); less than 30 mm long (Fig. 1) . . . . . *BELOSTOMA* Latrielle  
Basal segment of beak shorter than the second;  
length 40 mm or more long . . . . . *LETHOCERUS* Mayr

### KEY TO THE LOUISIANA SPECIES OF *BELOSTOMA* LATRIELLE

1. Connexival plates completely covered with hair;  
patch of hair on sixth connexival plate, extending to  
one-half the length of genital plate, triangular in  
shape (Fig. 3c) . . . . . 2

- Connexival plates never completely covered with hair; always separated from abdominal sternites by a glabrous area; patch of hair on sixth connexival plate separated from genital plate by a glabrous area, never reaching one-half length of genital plate, shape various (Fig. 3b & 3d) . . . . . 3
2. Lateral margins of pronotum concave, at least at the anterior one third (Fig. 5a); width of head through eyes usually less than one-half width of hemelytra; base of beak arising well beyond anterior margin of eye as seen from side (Fig. 4a) . . . . . *B. flumineum* Say  
Lateral margins of pronotum straight (rarely concave) (Fig. 5B); width of head through eyes nearly equal to one-half width of hemelytra; base of beak arising under anterior margin of eye or slightly beyond (Fig. 4b) . . . . . *B. bakeri* Montandon
3. Hair on connexivum wide, covering two-thirds or more of connexival plates at widest point (Fig. 3c & 3d); interocular space smooth, evenly convex, without depressions beside each eye (Figs. 1 & 6b) . . . . . 4  
Hair on connexivum narrow, covering only one-third of connexival plates at widest point (Fig. 3a); interocular space with a large shallow depression beside each eye (Fig. 6a) . . . . . *B. fusciventre* (Dufour)
4. Glabrous area separating hair from abdominal sternites very narrow, mesal margin of hair not evidently scalloped in outline (Fig. 3d); 20 mm or more in length (Fig. 1) . . . . . *B. lutarium* (Stal)  
Glabrous area separating hair from abdominal sternites wide, mesal margin of hair scalloped in outline (Fig. 3b); 19 mm or less long . . . . . *B. testaceum* (Leidy)

***Belostoma flumineum* Say, 1832.**

*Belostoma flumineum* Say, 1832. Description of New Species of Heteropterous Hemiptera of North America, p. 32.

*Perthostoma aurantiacum* Leidy, 1843; J. Acad. Natur. Sci. Phil., (2), 1:60, 66 (incl. var. *immaculatum*).

*Zaitha micrantula* Gillette and Baker, 1895, Colo. Agr. Exp. Sta. Bull., no. 31, p. 63.

*Zaitha fluminea* Dufour, 1863, Ann. Soc. Entomol. France, 32:388.

*Belostoma flumineum* Bueno, 1905, J. N. Y. Entomol. Soc., 13:44.

*Description.* General color brownish-yellow to fuscous-brown; legs usually having large dark spots; margins of pronotum concave; disk of pronotum with five transverse wrinkles; scutellum with longitudinal wrinkles at middle of basal portion; wide silken stripe of hairs on connexivum, covering entire mesal area and touching genital operculum (Fig. 3c); length 18-21 mm; width 8.5-10 mm.

Although this is probably the most common species of the genus *Belostoma* in the United States, it ranks far behind *B. lutarium* in distribution in Louisiana. *B. flumineum* frequents sluggish streams or marsh areas with abundant aquatic vegetation. This species is closely related to *B. lutarium*, from which it can be readily separated by the characters given in the key.

*Distribution by Parish* (Fig. 7b). *Cameron*—N. of Creole, 7417-67 (GJG 95). *Cameron*—N. of Hickory, 7-17-67 (GJG 93). *E. Baton Rouge*—SE of Fred, 7-10-67 (GJG 80). *St. Mary*—S. of Louisa, 3-16-67 (GJG 21).

*Previous Parish Records*. Orleans (New Orleans, Say, 1831). Orleans (New Orleans, Shufeldt, 1884). Jefferson, St. Bernard, St. John the Baptist (Ellis, 1952). Bossier, Red River, Winn, (Penn, 1952).

*Belostoma bakeri* Montandon, 1913.

*Belostoma bakeri* Montandon, 1913, Bull. Soc. Rom. Sti. Buc., 22:123-125.

*Description*. General color brownish-yellow to fuscous; first segment of beak shorter than second; base of beak arising under anterior margin of eye or slightly beyond; lateral margin of pronotum straight (rarely concave) (Fig. 5b); connexival plates completely covered with hair; patch of hair on sixth connexival plate touching genital plate (Fig. 3c); length 61-20 mm; width 7.5-9.5 mm.

Only seven collections of this species were made in Louisiana (Ellis, 1952). The specimens are from Orleans and Lafourche parishes. Habitats recorded were permanent bodies of fresh water which were exposed, soft bottomed, and contained abundant aquatic vegetation. Future collections may reveal it to occur throughout the alluvial areas of southern Louisiana.

*Distribution by Parish* (Fig. 8a). No specimens were found during course of this study.

*Previous Parish Records*. Orleans, Lafourche (Ellis, 1952).

*Belostoma fusciventre* (Dufour), 1863.

*Zaita fusciventre* Dufour, 1863, Ann. Soc. Entomol. France, 32:329.

*Belostoma fusciventris* Bueno, 1906, Entomol. News, 18:55.

*Belostoma fusciventris* De Carlo, 1938, Anal. Mus. Arg. Cienc. Natur., 39:222.

*Description*. General color brownish-yellow to fuscous; lateral margins of pronotum straight (rarely concave) (Fig. 5b); hair on connexivum narrow, covering only one-third of connexival plates at widest point (Fig. 3a); interocular space with a large shallow depression beside each eye (Fig. 6a); marginal brown spot in middle of each connexival plate; terminal hook of transverse suture of pronotum depressed; length 16-19 mm; width 7.5-9 mm.

This species is sometimes confused with *B. bakeri*, from which it can be readily distinguished by the large shallow depressions beside each eye. *B. fusciventre* is primarily a Mexican form. According to Menke (1958) it has been recorded as far N.E. as Brownsville, Texas. Snow (1906) recorded this species in S.E. Arizona. It is herein recorded for Louisiana as a new state record and a sizable range extension of 600-800 miles. This, however, is not too surprising. Many species have much more extensive ranges than are suspected, but due to lack of adequate collections the ranges remain unknown. One of the collections of this species was taken from extreme N.E. Louisiana. No doubt this insect may be found in Mississippi and possibly still further East.

*Distribution by Parish* (Fig. 7d). *Adison*—S. of Talluah, 8-17-67 (GJG 122). *Calcasieu*—S.W. of Vinton, 7-17-67 (GJG 92). *Iberia*—S.E. of Iberia, 8-23-67 (GJG 128). *Lafayette*—Greenbriar Sub., 8-17-67 (GJG 3). *Vermillion*—at Kaplan, La., 10-10-67 (GJG 159).

*Belostoma lutarium* (Stal), 1856.

*Zaitha lutarium* Stal, 1856, Ofvers. Kongl. Vetenskaps-Akad. Forhandl., 12:190.

*Zaitha aurantiaca* Walker, 1873, Cat. Hem. Het. Brit. Mus., pt. 8, p. 179.

*Zaitha aurantiacum* Uhler, 1886, Checkl. Hem. Het. No. Amer., Brookl. Entomol. Soc., p. 28.

*Belostoma aurantiacum* Bueno and Brimley, 1907, Entomol. News, 18:435.

*Belostoma lutarium* Montandon, 1909, Bull. Soc. Rom. Sti. Buc., 18:187-188.

*Belostoma lutaria* Van Duzee, 1916, Checkl. Hem. Amer., N.Y. Entomol. Soc., p. 53.

*Description.* General color greenish-yellow to fuscous; lateral margins of pronotum concave (Fig. 5a); hair on connexivum wide, covering two-thirds or more of connexival plates at widest point (Fig. 3d); glabrous area separating hair from abdominal sternites narrow, mesal margin of hair not evidently scalloped in outline; middle and hind legs annulate with fuscous, front femora with spots of the same hue; length 20-24 mm; width 10-12 mm.

*B. lutarium* is the most common species of the genus found in Louisiana. It resembles *B. flumineum* somewhat in shape and color pattern but can be separated from it by the overall larger size and more conical head. This species was found in all types of habitats throughout the state. Although greater numbers were collected in habitats with abundant aquatic vegetation, several collections were made in cold, clear, sand bottomed streams which were partly or wholly devoid of aquatic vegetation.

*Distribution by Parish* (Fig. 7a). *Beauregard*—E. of Singer, 6-27-67 (GJG 74). *Bienville*—S.S.W. of Acadia, 6-8-67 (GJG 53). *Bossier*—N.N.E. of Midway, 6-8-67 (GJG 48). *Calcasieu*—S.W. of Vinton, 7-17-67 (GJG 92). *E. Carrol*—W. of Alsatia, 7-25-67 (GJG 104). *E. Feliciana*—W. of Clinton, 7-10-67 (GJG 81). *E. Feliciana*—W. of Clinton, 7-10-67 (GJG 82). *Iberville*—N.W. of Plaquemine, 6-14-67 (GJG 61). *Lafayette*—S. of Beaver Park, Lafayette, 11-23-67 (GJG 12). *Lafayette*—S. of Lafayette, 1-31-67 (GJG 19). *Lafayette*—W. of Louisiana, 10-9-66 (GJG 4). *Lafayette*—W. of Lafayette, 10-26-66 (GJG 6). *La Salle*—S.S.W. of Trout, 8-17-67 (GJG 127). *Natchitoches*—S. of Perry, 10-20-66 (GJG 5a). *Ouachita*—N. of Monroe, 7-25-67 (GJG 101). *Ouachita*—S. of Fondale, 7-25-67 (GJG 100). *Sabine*—E. of Converse 8-14-67 (GJG 110). *St. Charles*—S. of Paradis, 1-29-67 (GJG 17). *St. James*—S. of Ponchatoula, 11-27-67 (GJG 152). *St. Martin*—N.W. of Cecilia, 6-14-67 (GJG 55). *St. Mary*—N.W. of Louisa, 3-16-67 (GJG 23). *St. Mary*—W. of Berwick, 11-9-66 (GJG 9b). *Terrebonne*—E. of Atchafalaya, 11-9-66 (GJG 9c). *Terrebonne*—E. of Houma, 11-20-67 (GJG 151). *Terrebonne*—S. of Chauvin, 8-17-67 (GJG 130). *Union*—E.N.E. of Linville, 6-26-67 (GJG 67). *Union*—W. of Spearville, 6-26-67 (GJG 66). *Vermillion*—N.W. of Intracoastal, 4-25-67 (GJG 148). *Vermillion*—W. of Pecan Island, 3-18-67 (GJG 24).

*Previous Parish Records.* Orleans (New Orleans, Shufeldt, 1884). East Baton Rouge, Iberville, Jefferson, Lafourche, Points Coupee, St. Benard, St. Charles, St. John the Baptist, St. Mary, St. Tammany, Tangipahoa, West Feliciana, (Ellis, 1952). Acadia, Bossier, Beinville, Caddo, DeSoto, Iberia, Jackson, Lafayette, Lincoln, Natchitoches, Ouachita, Rapides, Richland, St. Landry, St. Martin, Webster, W. Carrol, Winn (Penn, (1952).

*Belostonia testaceum* (Leidy), 1843

*Perthostoma testaceum* Leidy, 1843, J. Acad. Nat. Sci. Phil., (2) 1:60-66.

*Zaitha reticulata* Haleman, 1852, Explor. Surv. Valley Great Salt Lake Utah, Append. C, p. 370.

*Zaitha testaceum* Mayr, 1863, Verhandl. Kais-Konig. Zool. Bot. Ges. Wein, 13: 354.

*Zaitha testacea* Mayr, 1871, Verhandl. Kasikonig. Zool. Bot. Ges. Wein, 21:409-417.

*Belostoma testaceum* Bueno, 1905, J.N.Y. Entomol. Soc., 13:44.

*Description.* General color brownish-yellow to fuscous; broadly oval; legs dull yellow, irregularly barred or spotted; head short obtuse, interocular space smooth, evenly convex (Fig. 6b); hair on connexivum wide, covering two-thirds or more of connexival plates at widest point; glabrous area separating hair from abdominal sternites wide, mesal margin of hair scalloped (Fig. 3b); length 18-19.5 mm; width 9.5-10.5 mm.

This species has a fairly wide distribution in Louisiana. Future collections should reveal its range to be much more extensive. *B. testaceum* resembles *B. flumineum* most closely but can be separated from it by the characteristic pattern of connexival hair, smaller size, and more oval shape. The short head of *B. testaceum* resembles that of *B. fusciventre* at first glance but lacks the interocular depressions that makes *B. fusciventre* so distinctive.

*Distribution by Parish* (Fig. 7c). *Beauregard*—W. of Sugartown, 6-27-67 (GJG 73). *Bienville*—N. of Ringgold, 6-8-67 (GJG 51). *Bossier*—S. of Filmore, 6-8-67 (GJG 49). *De Soto*—W.S.W. of Mansfield, 6-7-67 (GJG 40). *E. Baton Rouge*—S.E. of Fred, 6-10-67 (GJG 80). *Lafayette*—Greenbriar Sub., 10-5-66 (GJG 3). *Lafayette*—S. of Beaver Park, 11-23-66 (GJG 12). *Lafayette*—W. of Louisiana, 10-26-66 (GJG 6). *Plaquemines*—N. of Myrtle Grove, 8-24-67 (GHG 136).

*Previous Parish Records.* Jefferson, Lafourche, Livingston, Morehouse, Orleans, Plaquemines, St. Benard, St. Charles, St. John the Baptist, St. Martin, St. Mary, St. Tammany, Terrebonne (Ellis, 1952). Acadia, Lafayette (Penn, 1952).

## KEY TO LOUISIANA SPECIES OF *LETHOCERUS* MAYR

1. Fore femur not grooved for reception of tibia (Fig. 2b) . . . . . *L. griseus* (Say)  
Fore femur grooved for reception of tibia (Fig. 2a) . . . . . 2
2. Interocular space narrower than width of eye; sides  
of elytra straight and subparallel from base to apical  
third . . . . . *L. uhleri* (Montandon)  
Interocular space equal to or slightly greater than  
width of eye; sides of elytra obviously but feebly  
curved . . . . . *L. americanus* (Leidy)

*Lethocerus* (Benacus) grisea (say), 1832.

1. *Belostoma grisea* Say, 1832, Descriptions of new species of heteropterous Hemiptera of N. Amer., p. 37.

2. *Belostoma haldemanum* Leidy, 1847, J. Acad. Natur. Sci. Phil., 1:66.
3. *Belostoma harpax* Stal, 1855, Ofvers. Kongl. Vetensk. Akad. Forhandl., 11:240.
4. *Belostoma angustatum* Guerin, 1856, Historia . . . de la Isla de Cuba, Part 2, 7:176.
5. *Belostoma distinctum* Dufour, 1863, Ann. Soc. Entomol. France, 32:382.

*Description.* Elongated-oval; color above dark olive to grayish-brown; pronotum with a vague light median stripe; narrow margins of pronotum and elytra dull yellow; under surface and legs, fuscous-brown, the femora and keel of abdomen often wholly or in part paler; fore femur not grooved for reception of tibia (Fig. 2b); length 55-56 mm; width 18-22 mm.

Lauck and Menke (1961) reduced *Benacus* Stal to a subgenus of *Lethocerus*. *L. griseus* may be easily distinguished from other members of the genus by the lack of grooves on the closing face of the fore femur. Most of the collections of this genus were made under street lights at night. Occasionally the bugs may be taken with dip nets in slow moving or stationary bodies of water with abundant aquatic vegetation. This species is no doubt well distributed throughout Louisiana.

*Distribution by Parish* (Fig. 8b). USL student collections record this species from the following parishes: Acadia, Lafayette, Lafourche, and Vermillion.

*Previous Parish Records.* Orleans (New Orleans, Say, 1831). Jefferson, Orleans, Pointe Coupee, St. Tammany (Ellis, 1952). Jackson, St. John the Baptist, St. Martin (Penn, 1952).

#### *Lethocerus uhleri* (Montandon), 1895.

*Belostoma uhleri* Montandon, 1896, Ann. Soc. Entomol. Belgique, 40:513.

*Description.* Elongate-oval; general color dull brownish-yellow; interocular space equal to two-thirds width of eye; hind lobe and scutellum with a vague median keel; broad stripe on each side of front lobe of pronotum; scutellum dark fuscous-brown; middle and hind legs distinctly annulated with pale and dark rings; fore femur grooved for reception of tibia (Fig. 2a); length 40-50 mm; width 16-19 mm.

*L. uhleri* occupies the same type habitat as does *L. griseus*. Being attracted to lights at night, these bugs are nearly always collected together. *L. uhleri* is somewhat smaller than *L. griseus* and may be distinguished from it by the possession of a groove on the inner face of the femur. They are not often collected in their aquatic habitats. Since few biologists collect at night, members of this genus are often neglected.

*Distribution by Parish* (Fig. 8c). USL student collections record this species from the following parishes: Acadia, Evangeline, Iberia, Lafayette, Lafourche, Rapids, Vermillion.

*Previous Parish Records.* Orleans (Cummings, 1933, and Ellis, 1952). St. Benard (Penn, 1952).

#### *Lethocerus americanus* (Leidy), 1847.

*Belostoma grandis* var. *americanum* Leidy, 1847, J. Acad. Natur. Sci. Phil., 1:66.

*Belostoma impressum* Haldeman, 1854, Proc. Acad. Natur. Sci. Phil., 6:364.

*Belostoma litigiosum* Dufour, 1863, Ann. Soc. Entomol. France, 32:383.

*Belostoma obscurum* Dufour, 1863, Ann. Soc. Entomol. France, 32:383.



*Description.* Elongate-oval; color above dull brownish-yellow; more or less mottle or streaked; scutellum sometimes with three vague pale spots; undersurface yellow, dotted with dark brown fuscous; front of head with distinct median keel; interocular space at narrowest point equal to width of eye; femora dull yellow, vaguely mottled with black; fore femur grooved for reception of tibia (Fig. 2a); length 50-55 mm, width 19-21 mm.

Only one collection of this species was ever made in Louisiana and this by Townsend (1886) in New Orleans. Townsend stated that this species was seen in abundance under street lights in New Orleans. It is not out of the realm of possibility that *L. americanus* could occur in Louisiana but the specimen is not available and the record is generally believed to be a mistaken identification of *L. uhleri*, which is very common throughout Louisiana. The two species can be separated by the wider interocular space of *L. americanus*.

*Distribution by Parish* (Fig. 8d). This species was not found in Louisiana during this study.

*Previous Parish Record.* Orleans (Townsend, 1886).

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## SEVEN FAMILIES OF AQUATIC AND SEMIAQUATIC HEMIPTERA IN LOUISIANA

### Part III. *Family Belostomatidae*

**ABSTRACT**—This paper contains data on the collection, taxonomy, distribution, and synonymy of eight species of the family Belostomatidae (aquatic Hemiptera) in Louisiana. Included are keys to the genera and species along with detailed locality data for each species. A review of the literature is presented with the family discussion. Ecological information is given with each species. Collections for this study were made on a year around basis. A new state record with a considerable range extension is herein recorded.

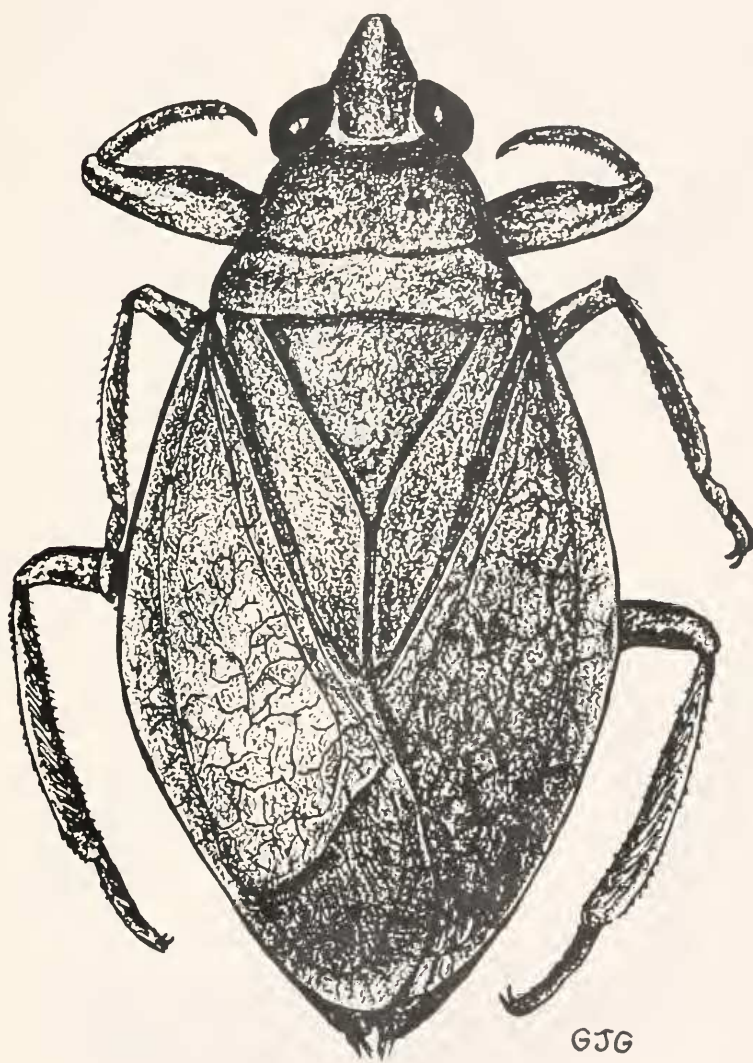
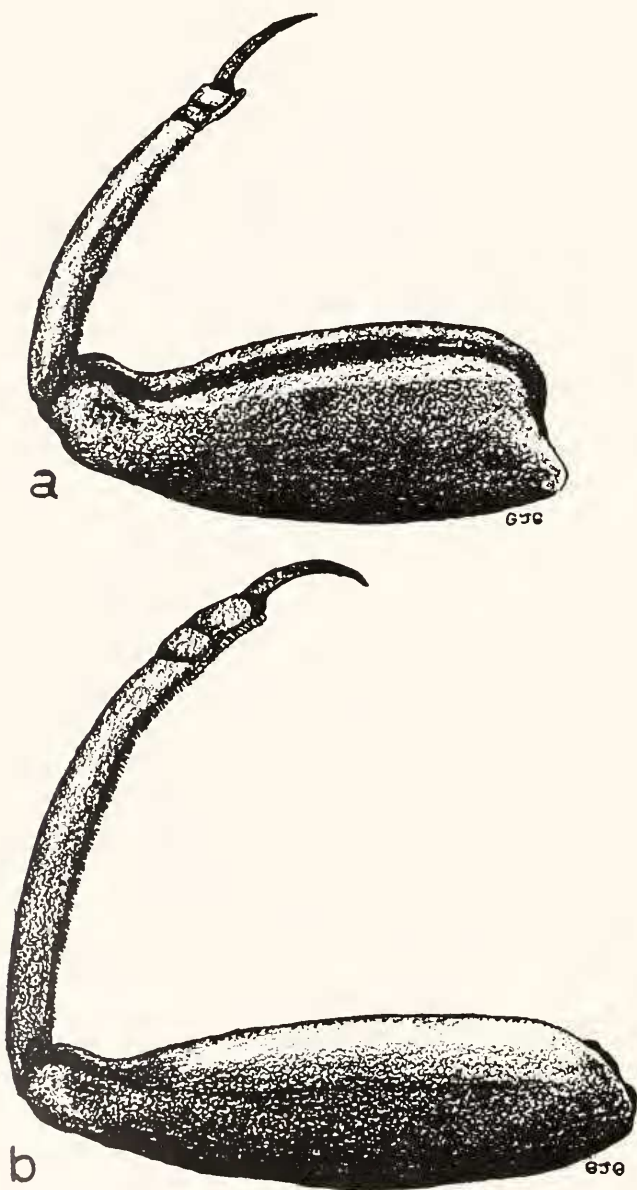
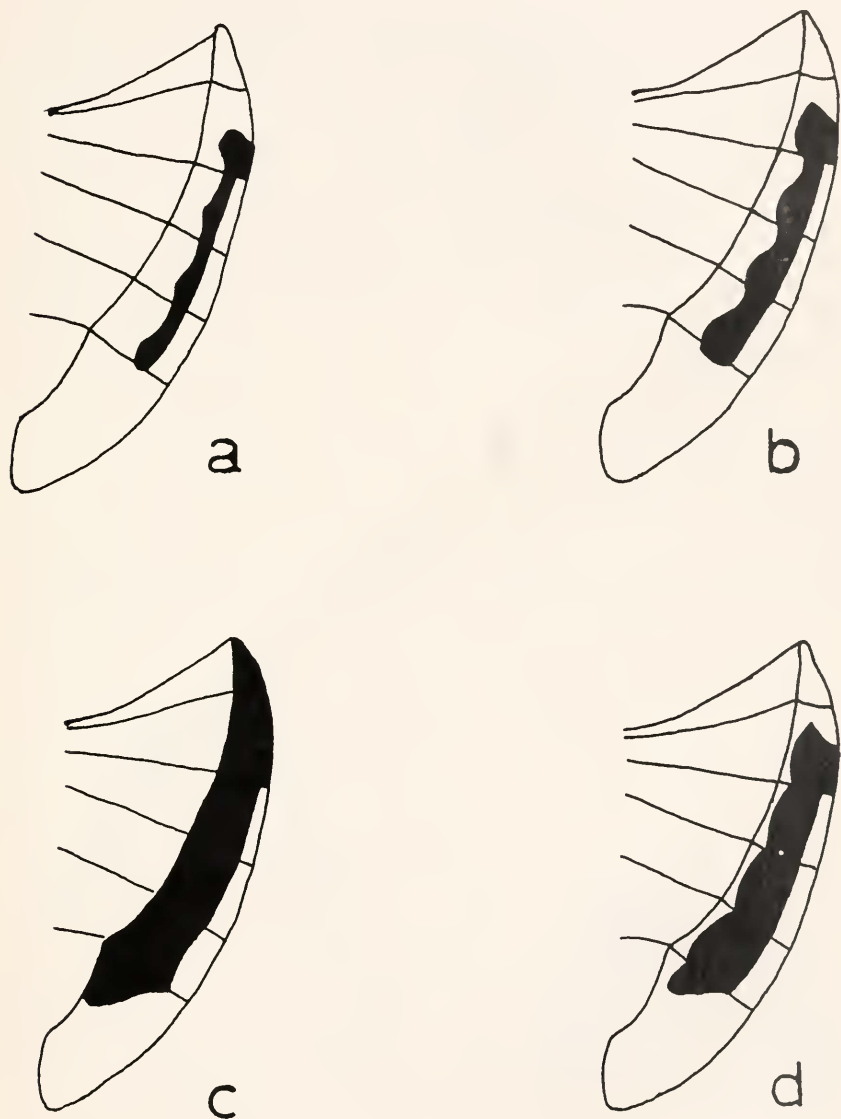


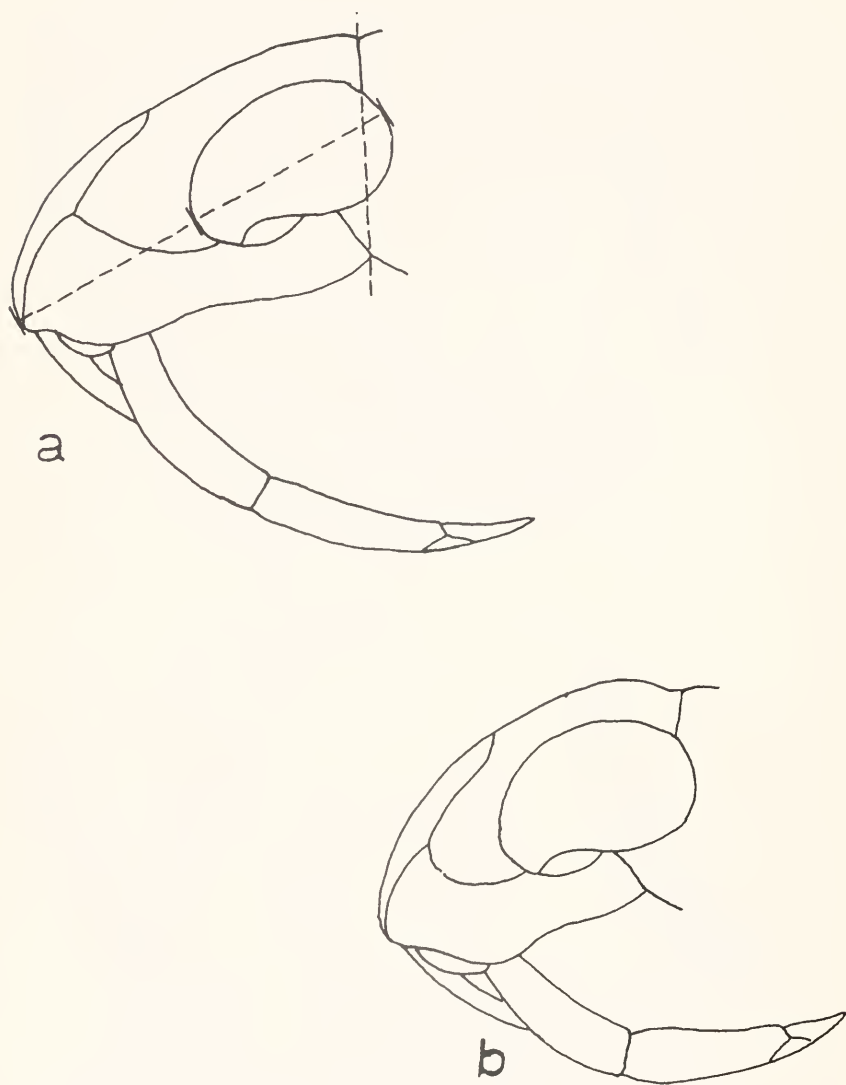
Fig. 1. *Belostoma lutarium* (Stal.).



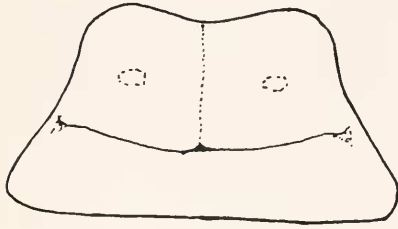
Figs. 2a-b. Fore femur of *Lethocerus*. a. *uhleri* (Montandon) and *americanus* (Leidy); b. *griseus* (Say).



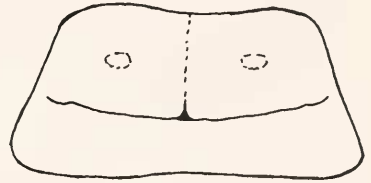
Figs. 3a-d. Hair on connexival plates of *Belostoma*. a. *fusciventre* (Dufour); b. *testaceum* (Leidy); c. *flumineum* Say and *bakeri* Montandon; d. *lutarium* (Stal).



Figs. 4a-b. Lateral aspect of head of *Belostoma*. a. *flumineum* Say; b. *bakeri* Montandon.

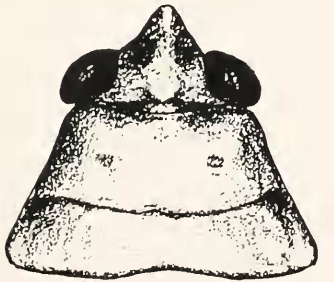


a

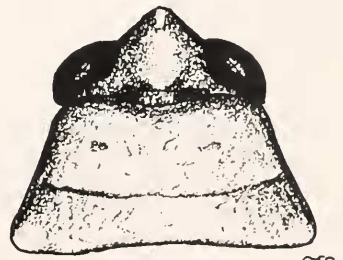


b

Figs. 5a-b. Dorsal aspect of pronotum of *Belostoma*. a. *flumineum* Say; b. *bakeri* Montandon.



a



b

Figs. 6a-b. Dorsal aspect of head and pronotum of *Belostoma*. a. *fusciventre* (Dufour); b. *testaceum* (Leidy).

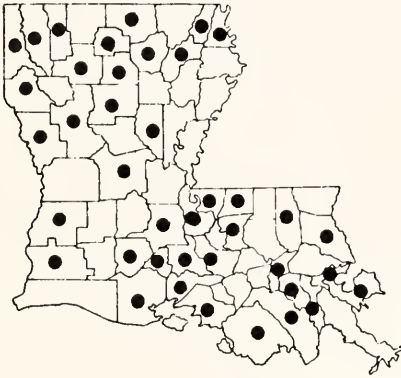


Fig. 7a. Distribution of *Belostoma lutarium* (Stal.).

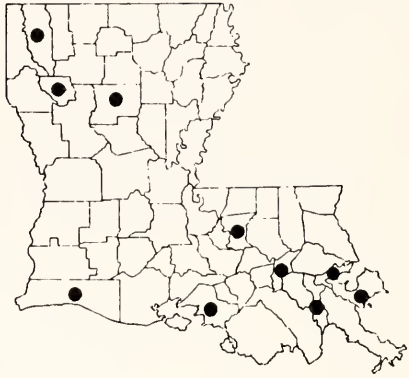


Fig. 7b. Distribution of *Belostoma flumineum* Say.

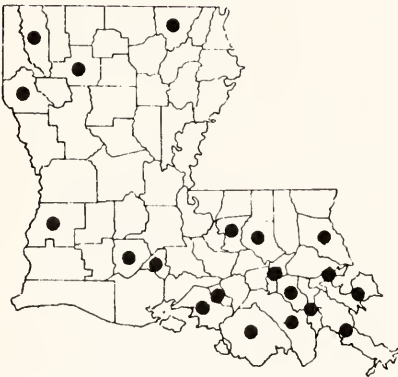


Fig. 7c. Distribution of *Belostoma testaceum* (Leidy).



Fig. 7d. Distribution of *Belostoma fusciventre* (Dufour).





Fig. 8a. Distribution of *Belostoma bakeri* Montandon.

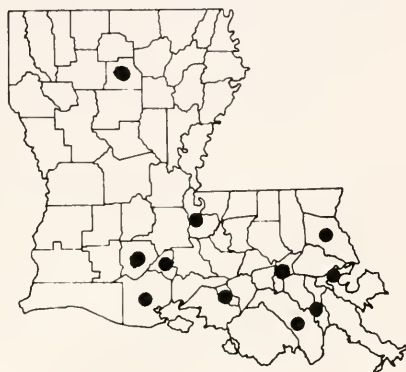


Fig. 8b. Distribution of *Lethocerus griseus* (Say).

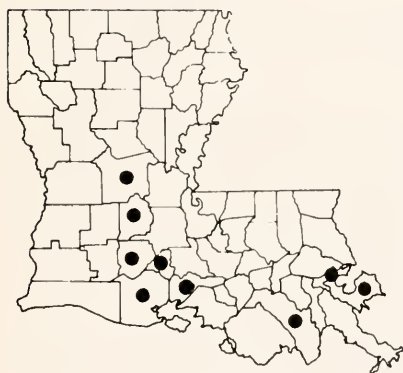


Fig. 8c. Distribution of *Lethocerus uhleri* Montandon.



Fig. 8d. Distribution of *Lethocerus americanus* (Leidy).